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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/810,887	03/29/2004	Hak-Sun Chang	6192.0361.US	1078
7590 03/21/2006			EXAMINER	
McGuireWoods LLP Suite 1800 1750 Tysons Boulevard McLean, VA 22102			VU, PHU	
			ART UNIT	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

EL

Office Action Summary	Application No. 10/810,887	Applicant(s) CHANG ET AL.	
	Examiner Phu Vu	Art Unit 2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|-----------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Response to Arguments

Applicant's arguments with respect to claims 1-23 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 1-2, 5-7, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamakita 6661491 in view of Sato 4987012.

Regarding claims 1, 6 and, Yamakita 6661491 teaches a liquid crystal display with a common electrode (fig. 3 element 2) thereon; a liquid crystal layer (fig. 4a and 4b element 4) injected between the upper and lower substrates (fig. 4b elements 3 and 5) and spacers (not shown in figs for this embodiment see column 10 lines 20-28; however shown in fig. 24 element 61) positioned between the upper and lower substrate and within a pixel region, the spacers in the pixel region determining a gap (see fig. 24) between the upper and lower substrates and wherein the liquid crystal molecules are aligned antiparallel to each other (fig. 4B). The reference fails to teach the spacers being black or any color however, Sato teaches black spacers, that provided sharp and clear images (see column 4 lines 26-30). Therefore, at the time of the invention, it

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would have been obvious to one of ordinary skill in the art to apply black spacers to provide sharp and clear pictures.

Regarding claim 2 and 7, Yamakita teaches a compensation film and polarizer (see fig. 107a and 106).

Regarding claim 5 and 10, the reference teaches the spacers of ball type (see claim 1 rejection).

Claims 3-4 and 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamakita in view of Sato and further in view Motomura 6103323.

Regarding claim 3-4 and 8-9, Yamakita and Sato disclose all the limitations of the claim except the slow axis of the polarizer making a 45 degree angle with the transmission axis of the polarizer. Motomura discloses making a 45 degree angle between the transmission axis of the polarizer and the slow axis of the retarder to improve lighting quality of polarized light (see column 15 lines 10-15). Therefore, at the time of the invention, it would have been obvious to one of ordinary skill in the art to make a 45 degree angle between the transmission axis of the polarizer and the slow axis of the retarder to improve lighting quality.

Claims 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamakita in view of Sato and further in view of Bos US Patent No. 5410422.

Yamakita and Sato teach all the limitations of claim 11 except a compensation layer that has a smaller dispersion of birefringence than the liquid crystal layer. Bos teaches a compensator birefringence with 60 to 85 percent the product of a cell gap

distance and birefringence of the cell (dispersion birefringence of LC layer) to compensate for color shifting (see column 7 lines 46-65). Therefore, at the time of the invention, it would have been obvious to use a compensator with lower birefringence than the dispersion birefringence of the LC cell reduce color shifting the display.

Claims 12-13, 16, 18-19 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamakita in view of Sato and further in view of Watanabe 5617228.

Regarding claims 12 and 18, Yamakita 6661491 teaches a liquid crystal display with a common electrode (fig. 3 element 2) thereon; a liquid crystal layer (fig. 4a and 4b element 4) injected between the upper and lower substrates (fig. 4b elements 3 and 5) and spacers (not shown in figs for this embodiment see column 10 lines 20-28; however shown in fig. 24 element 61) positioned between the upper and lower substrate and within a pixel region, the spacers in the pixel region determining a gap (see fig. 24) between the upper and lower substrates and wherein the liquid crystal molecules are aligned antiparallel to each other (fig. 4B). The reference fails to teach the spacers being black or any color however, Sato teaches black spacers, which would inherently have less than 3% transmission, that provided sharp and clear images (see column 4 lines 26-30). Therefore, at the time of the invention, it would have been obvious to one of ordinary skill in the art to apply black spacers to provide sharp and clear pictures.

Yamakita and Sato fail to teach a number of spacers less than 90 in one square millimeter, however Watanabe teaches a ball type spacers of spacer density of 60 spacers/mm allows for smaller diameter spacers that does has no adverse affects to the

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display quality (column 13 line 65 – column 14 line 3). Therefore, at the time of the invention, it would have been obvious to one of ordinary skill in the art to use a spacer density of 60/mm (less than 90 mm) in order to provide spacing without any adverse affects to the display quality.

Regarding claims 13 and 19, Yamakita teaches a compensation film and polarizer (see fig. 107a and 106).

Regarding claim 16 and 22, the reference teaches the spacers of ball type (see claim 12 rejection).

Claims 14-15 and 20-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamakita in view of Sato and further in view Motomura 6103323.

Regarding claim 14-15 and 20-21, Yamakita and Sato disclose all the limitations of the claim except the slow axis of the polarizer making a 45 degree angle with the transmission axis of the polarizer. Motomura discloses making a 45 degree angle between the transmission axis of the polarizer and the slow axis of the retarder to improve lighting quality of polarized light (see column 15 lines 10-15). Therefore, at the time of the invention, it would have been obvious to one of ordinary skill in the art to make a 45 degree angle between the transmission axis of the polarizer and the slow axis of the retarder to improve lighting quality.

Claims 17, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamakita in view of Sato in view of Watanabe and further in view of Bos US Patent No. 5410422.

Yamakita and Sato teach all the limitations of claim 11 except a compensation layer that has a smaller dispersion of birefringence than the liquid crystal layer. Bos teaches a compensator birefringence with 60 to 85 percent the product of a cell gap distance and birefringence of the cell (dispersion birefringence of LC layer) to compensate for color shifting (see column 7 lines 46-65). Therefore, at the time of the invention, it would have been obvious to use a compensator with lower birefringence than the dispersion birefringence of the LC cell reduce color shifting the display.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phu Vu whose telephone number is (571)-272-1562. The examiner can normally be reached on 8AM-5PM M-F.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on (571)-272-2293. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Examiner
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ANDREW SCHECHTER
PRIMARY EXAMINER